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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/927,274	08/10/2001	James William Otter	60246-142/9639	5282

7590                    03/18/2002

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EXAMINER

FLANIGAN, ALLEN J

ART UNIT	PAPER NUMBER
3743	

DATE MAILED: 03/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.	OTTER, JAMES WILLIAM
Examiner	Art Unit
Allen J. Flanigan	3743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 14 February 2002.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 6,7 and 9-20 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-5 and 8 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some \* c) None of:  
1. Certified copies of the priority documents have been received.  
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)                    4) Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.  
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)                    5) Notice of Informal Patent Application (PTO-152)  
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.                    6) Other:

Claims 6, 7, and 9-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention or species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 3.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith, Jr. in view of Thery et al.

Smith, Jr. discloses a radiant heat exchange panel in which an emissive coating is applied. This coating "may be applied in any suitable manner, as by chemical means such as anodizing . . . followed by subsequent baking or heat treatment . . . or by electrical deposition" (lines 2-11 of column 7). One suggested process is said to be disclosed in Clingan (US patent # 2,394,899, incorporated by reference) which forms a "black oxide film or skin". This process involves oxidizing stainless steel or "other alloy steel" articles using alkaline salt baths.

Thery et al. disclose a radiation flux measuring device which incorporates a highly emissive layer 14 deposited on layers 13a of conductive metal such as copper. One highly preferred method of forming an emissive layer is disclosed

at the top of column 11: The existing layers of copper 13c are subject to a heating step, resulting in the *in situ* formation of a highly emissive copper oxide layer. This copper oxide layer is said to have an emissivity on the order of 1.

Thus, in view of Smith, Jr.'s express suggestion that an emissive coating may be applied in "any suitable manner", it would have been an obvious substitution of known equivalents to form a copper oxide layer in the manner taught in Thery et al., instead of the ferric oxide layer suggested in Smith, Jr., particularly in view of the high emissivity of the copper oxide coating taught therein.

Regarding claim 3, it is well known in the art that metal oxides can be formed using alkaline baths, as Clingan indicates for ferric oxide, and to form a copper oxide layer as taught in Thery et al. for high surface emissivity using an alkaline bath instead of a heating step would again have been an obvious substitution of one well known means of forming an oxide layer for another. The Examiner takes official notice of the well-known character of forming copper oxide layers using alkaline solutions. ***In re Malcolm et al., 54 U.S.P.Q. 235.***

Regarding claim 8, note lines 39-43 of column 7 of Smith, Jr. The opposed sides of the webbed tubing would be readable on the "first" and "second" surfaces of the heat exchanger.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Radway et al. expressly disclose the equivalence of copper and ferric oxide as high emissivity "darkening" agents Isobe et al. similarly discloses the use of ferric oxide as a high emissivity coating for heating.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen J. Flanigan whose telephone number is (703) 308-1015. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennett can be reached on (703) 308-0101. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7764 for regular communications and (703) 305-3463 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0861.

  
Allen J. Flanigan  
Primary Examiner  
Art Unit 3743

AJF  
March 11, 2002